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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,180	05/30/2001	Kenneth L. Smith	54538USA9B011	7800

32692 7590 06/04/2003

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EXAMINER	
GOFF II, JOHN L	

ART UNIT	PAPER NUMBER
1733	7

DATE MAILED: 06/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-7

Office Action Summary	Application No. 09/870,180	Applicant(s) SMITH ET AL.	
	Examiner John L. Goff	Art Unit 1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 March 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *22-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *22-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 May 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. This action is in response to Amendment A received on 3/14/03. The previous objections and 35 U.S.C. 112 rejections to the claims have been overcome. In view of applicants' arguments the rejections over Rowland in view of McGrath and Chau et al. in view of Rowland are withdrawn. A new rejection is set forth below.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 22-30 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chau et al. (U.S. Patent 5,735,988) in view of Stamm (U.S. Patent 3,712,706) and Rowland (U.S. Patent 3,810,804).

Chau et al. are directed to a method for making optical elements that are reflective. Chau et al. teach a method comprising providing a body layer (replica surface topography) having a

structured surface, applying a reflective coating to the structured surface, applying an at least partially transparent, flowable, and radiation curable adhesive to the structured surface, placing a substrate over the radiation curable adhesive, and curing the adhesive to form an optical element. Chau et al. further teach applying the radiation curable adhesive by first coating the substrate and then, applying the coated substrate to the structured surface (Figures 1C-1F and Column 5, lines 57-65 and Column 6, lines 6-16 and 20-21).

Regarding claims 22 and 35, Chau et al. are silent as to the structured surface including cube corner cavities. However, it is noted Chau et al. teach the structured surface may include any type of surface topography, i.e. Chau et al. are not limited to any particular surface topography (Column 5, lines 16-21). One of ordinary skill in the art at the time the invention was made would have readily appreciated using as the surface topography taught by Chau et al. a topography comprising cube corner cavities as suggested by Stamm to create a reflective optical element having high reflective efficiency.

Stamm is directed to retroreflective articles having high reflective efficiency. Stamm teaches providing a base material, providing the base material with cube corner cavities, applying a reflective foil to the cube corner cavities, and filling the cube corner cavities with an optically transparent material. Stamm teaches the cube corner cavities are separated on their top surface (Figure 1 and Column 2, lines 3-13 and Column 3, lines 35-55 and Column 5, lines 8-14 and Column 6, lines 38-45).

Regarding claim 22, Chau et al. do not specifically recite the radiation curable adhesive as also pressure-sensitive. However, one of ordinary skill in the art would have readily appreciated that acrylic based radiation curable adhesive such as those taught by Chau et al.

would include acrylic based pressure-sensitive adhesive particularly when the optical elements are laminated to a substrate as evidenced by Rowland wherein an acrylic based pressure-sensitive adhesive is used to laminate a substrate to a retroreflective article.

Rowland is directed to a method of making retroreflective articles. Rowland teaches a method comprising providing a body portion having a structured surface, applying a reflective coating to the structured surface, applying a flowable, acrylic pressure-sensitive adhesive to the structured surface, and laminating a releasable sheet to the structured surface. Rowland further teaches removing the releasable sheet to mount the reflective material on another surface (Figure3 and Column 4, lines 42-50 and Column 7, lines 63-70 and 74-75 and Column 8, lines 1-2).

Regarding claims 26 and 27, Chau et al. are silent as to applying the reflective optical element to a substrate wherein the substrate is a releasable liner. However, it is noted Chau et al. are not limited to any particular type of substrate. One of ordinary skill in the art at the time the invention was made would have readily appreciated using as the substrate taught by Chau et al. a releasable liner as suggested by Rowland as it is conventional in the art to apply the optical element to a releasable liner when the optical element is not permanently mounted during production of the element.

Regarding claims 28 and 29, Chau et al. are silent as to incompletely filling the cube corner cavities. One of ordinary skill in the art at the time the invention was made would have readily appreciated that when applying the adhesive to the structured surface some air would be trapped and the cavities would be incompletely filled resulting in a later settling of the adhesive.

Regarding claim 30, Chau et al. are silent as to the degree the radiation curable pressure-sensitive adhesive is cured/crosslinked prior to its application to the structured surface. Absent any unexpected results, one of ordinary skill in the art at the time the invention was made would have readily appreciated that an adhesive crosslinked to a higher degree prior to its application would reduce the processing/cure time required after its application and thus, improve production efficiency.

5. Claims 31, 33, 34, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chau et al. (U.S. Patent 5,735,988) in view of Stamm (U.S. Patent 3,712,706).

Chau et al. are directed to a method for making optical elements that are reflective. Chau et al. teach a method comprising providing a body layer (replica surface topography) having a structured surface, applying a reflective coating to the structured surface, applying an at least partially transparent, flowable, and radiation curable adhesive to the structured surface, placing a substrate over the radiation curable adhesive, and curing the adhesive to form an optical element. Chau et al. further teach applying the radiation curable adhesive by first coating the substrate and then, applying the coated substrate to the structured surface (Figures 1C-1F and Column 5, lines 57-65 and Column 6, lines 6-16 and 20-21).

Regarding claims 31 and 36, Chau et al. are silent as to the structured surface including cube corner cavities. However, it is noted Chau et al. teach the structured surface may include any type of surface topography, i.e. Chau et al. are not limited to any particular surface topography (Column 5, lines 16-21). One of ordinary skill in the art at the time the invention was made would have readily appreciated using as the surface topography taught by Chau et al. a

topography comprising cube corner cavities as suggested by Stamm to create a reflective optical element having high reflective efficiency.

Stamm is directed to retroreflective articles having high reflective efficiency. Stamm teaches providing a base material, providing the base material with cube corner cavities, applying a reflective foil to the cube corner cavities, and filling the cube corner cavities with an optically transparent material. Stamm teaches the cube corner cavities are separated on their top surface (Figure 1 and Column 2, lines 3-13 and Column 3, lines 35-55 and Column 5, lines 8-14 and Column 6, lines 38-45).

6. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chau et al. and Stamm as applied above in paragraph 5, and further in view of Rowland.

Chau et al. and Stamm as applied above teach all of the limitations in claim 32 except for specifically reciting the radiation curable adhesive as also pressure-sensitive. However, one of ordinary skill in the art would have readily appreciated that acrylic based radiation curable adhesive such as those taught by Chau et al. as modified by Stamm would include acrylic based pressure-sensitive adhesive particularly when the optical elements are laminated to a substrate as evidenced by Rowland wherein an acrylic based pressure-sensitive adhesive is used to laminate a substrate to a retroreflective article.

Rowland is directed to a method of making retroreflective articles. Rowland teaches a method comprising providing a body portion having a structured surface, applying a reflective coating to the structured surface, applying a flowable, acrylic pressure-sensitive adhesive to the structured surface, and laminating a releasable sheet to the structured surface. Rowland further teaches removing the releasable sheet to mount the reflective material on another surface

(Figure3 and Column 4, lines 42-50 and Column 7, lines 63-70 and 74-75 and Column 8, lines 1-2).

Response to Arguments

7. Applicant's arguments with respect to claims 22-36 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **703-305-7481**. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

John L. Goff
May 29, 2003

Michael W. Ball
Supervisory Patent Examiner
Technology Center 1700